REMARKS

This amendment responds to the office action dated October 23, 2008.

The Examiner rejected claim 1 under 35 U.S.C. § 112 as being indefinite for a lack of an antecedent for the term "said first image." The applicant has amended claim 1 to no longer recite a "first" image. The applicant therefore respectfully requests that this rejection be withdrawn.

The Examiner rejected claims 1, 20, and 25 under 35 U.S.C. § 101, contending that they were each directed to functional descriptive material, per se. The applicant has amended each of these claims to recite the limitation of encoding the claimed image on a computer-readable medium, as suggested by the Examiner. The applicant therefore respectfully requests that the rejection of these claims under 35 U.S.C. § 101 be withdrawn

The Examiner rejected claims 1-25 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Watson, U.S. Patent No. 5,426,512 in view of Jones et al., U.S. Patent No. 6,349,151 (hereinafter Jones) and in further view of Fleet et al., U.S. Patent No. 5,949,055 (hereinafter Fleet). The Examiner's rejection of these claims is improper, as the respective techniques taught by the cited references are incompatible as the Examiner seeks to combine them.

As noted by the Examiner, the standard for evaluating an obviousness rejection is whether the combined *teachings* of the references suggest the claimed limitations. Having said that, the Examiner has cited no actual teachings in the cited references leading one of ordinary skill in the art to arrive at the claimed invention; rather, the Examiner merely finds the applicant's limitations as disparate pieces in the cited references and asserts, without support in the teachings of the references, that one of ordinary skill in the art would combine them asserted by the Examiner. Moreover, as the applicant has previously argued, the relevant teachings of the references are *incompatible*; hence, one of ordinary skill in the art would not make the suggested combination. As shown below, though the Examiner ostensibly responds to the applicant's argument that the cited combination would change the principle of operation of the primary reference, and although not actually disputing the point, the Examiner did not respond to the

applicant's later argument that the cited combination would render the applicant's limitation of reconstructing respective images form the various Q-tables "using a visual difference model that simulates the perception of the human eye" superfluous.

Independent claim 1 describes a process where two spatial reconstructions of an image are created by separately quantizing, using two different sets of quantization values, a DCT transform of an image and then reconstructing the differently-quantized DCT transforms using a color difference model that simulates the perception of the human eye. These two spatial reconstructions are compared to the original image so as to select the set of quantization values that produces the more desired result. The quantization values are specified by claim 1 as being not "calculated using data from said image."

Watson, the primary reference, discloses a quantization optimizer 36 that begins with an initialized quantization matrix having preset values, typically the maximum permissible, e.g. 255 in the JPEG standard. An image is quantized using these initial values, and a perceptual error is then measured using the initial quantization table. The measured perceptual error, along with image information is then used to update the quantization matrix. The process repeats iteratively until an acceptable perceptual error results. Thus, any updated quantization matrix in the cited primary reference is not only "calculated using data from said image" in contradiction to what is claimed in independent claim 1, but Watson does not describe a procedure of separately comparing two images, each reconstructed using different quantization values, so as to choose between them. Instead, Watson reconstructs a first image using a first quantization table, discards it if an error metric is too high, proceeds to another set of quantization values, etc.

Jones, conversely, uses a model of the human visual system to initially construct separate Q-tables, and based on the assumptions used in constructing the Q-tables, associates a respective quality parameter to each. The disclosed quality parameter is a viewing distance, which is used to construct respective Q-tables, presumably on the assumption that a closer viewing distance requires more detail or quality in the image, hence a finer Q-table that produces an image with a larger file size. Portions of an image are quantized using the different Q-tables so as to estimate a file size that would result from each Q-table. These file sizes are then associated with the quality

parameter associated with the Q-table that produces that file size and a curve is constructed that relates file size to quality used when constructing the image. The curve may then be used to select the Q-table that achieves a desired balance between file size and quality, and uses the selected Q-table to reconstruct the entire image. Thus, while Watson sequentially reconstructs first, second, third images using iteratively improved Q-tables based on image data, Jones adopts the approach of recon

The Examiner argues that one of ordinary skill in the art, from Jones, would understand that the method of Watson could use multiple Q-tables that are constructed without using image data. The Examiner cites no teaching in either Jones or Watson to support this assertion however. Rather, the Examiner simply summarily asserts that doing so would achieve the goal of the secondary reference, i.e., improved image quality. The teachings of the references themselves, however, do not support this assertion. The method of Watson is one that achieves a predetermined quality threshold b y iteratively improving the values of a Q-table used to construct the image. Jones assumes that different qualities may be needed for different viewing distances, hence constructs multiple Q-tables with the goal of only constructing the image once with the chosen Q-table. Thus, the whole point of using the method of Jones obviates the need for the method of Watson.

Moreover, as noted in applicant's prior response, Jones uses a difference model based on the perception of the human eye to construct the Q-tables in the first instance. If Jones were somehow used to modify the technique of Watson, as suggested by the Examiner to produce multiple quantized DCT values, the later claimed step of reconstructing respective images form the various Q-tables "using a visual difference model that simulates the perception of the human eye" would be entirely superfluous; the Q-tables would already be based on such information. In this vein, no cited reference *teaches* the limitation of comparing the image to respective spatial reconstructed images, each based upon one of the first and second sets of quantization values, using a visual difference model that simulates the perception of the human eye. The Examiner simply arrives at the limitation using hindsight by piecing together disparate features of three references.

Thus, for each of the foregoing reasons, one of ordinary skill in the art would not find the limitations of claim 1 obvious in view of any combination involving Watson and Jones, and independent claim 1, as well as its dependent claims 2-19 are patentably distinguished over the cited prior art.

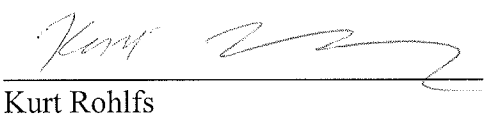
Similarly, independent claim 25 recites limitations similar to those just recited with respect to independent claim 1, and is distinguished over the combination of Watson, Jones, and Fleet for the same reasons as is claim 1.

Independent claim 20 recites the limitation of "based upon said error measure, scaling said first set of quantization values by applying a single common scaling factor to each quantization value within said first set of quantization values, said scaling factor having a value not dependent on information from said first image. The Examiner cites Jones for the proposition that it teaches that Watson could be modified so as to use plural quantization values that are constructed without using image data. The plural Q-tables of Jones, however, are constructed using different respective scaling factors, so if the method of Jones were substituted for that of Watson, as suggested by the Examiner, this limitation of claim 20 would not be present in the combination.

Therefore claim 20, as well as its respective dependent claims 21-24, are each patentably distinguished over the cited prior art.

In view of the foregoing amendments and remarks, the applicant respectfully requests reconsideration and allowance of claims 1-25.

Respectfully submitted,



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